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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/813,171	03/31/2004	Hiroshi Sasaki	05030027AA	4482
30743	7590	06/13/2006	EXAMINER	
WHITHAM, CURTIS & CHRISTOFFERSON & COOK, P.C. 11491 SUNSET HILLS ROAD SUITE 340 RESTON, VA 20190			BOATENG, ALEXIS ASIEDUA	
			ART UNIT	PAPER NUMBER
			2838	

DATE MAILED: 06/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/813,171

Applicant(s)

SASAKI, HIROSHI

Examiner

Alexis Boateng

Art Unit

2838

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Rahman (U.S. 5,990,664).

**Regarding claim 1,** Rahman discloses wherein a power source circuit for a cell for controlling transfer of electrical energy from said cell to loads, wherein a device employing said power source circuit is operated in a manner that, when a discharge voltage of said cell becomes lower than an operation lower limit voltage of said device to be operated, a voltage output from said power source circuit for said cell is made higher than said operation lower limit voltage of said device by using a voltage increasing unit (column 5 lines 4 – 26; figure 3b item 2: voltage increasing unit is the boost converter).

3. Claims 3, 5, 6, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Kitagawa (U.S. 6,414,403).

**Regarding claim 3,** Kitagawa discloses wherein a power source for a cell for controlling transfer of electric energy from said cell to loads, said power source circuit comprising:

Art Unit: 2838

a cell voltage detecting circuit to detect a voltage of said cell (figure 1 item 6),

a discharge controlling circuit (figure 3 item 25),

an output voltage detecting circuit (figure 1 item 6),

a step-up DC-DC converter (figure 1 item 4),

a switching circuit to switch positive electrode of said cell to either of an output terminal of said power source circuit or an inputting section of said step-up DC-DC converter (figure 1 item 4),

and a power storing section mounted in an outputting section of said power source circuit (figure 3 item C2),

wherein a device employing said power source circuit is operated in a manner that, when a discharge voltage of said cell becomes lower than an operation lower limit voltage of said device to be operated, a voltage output from said power source circuit for said cell is made higher than said operation lower limit voltage of said device by using said step-up DC-DC converter (column 4 lines 32 – 55).

**Regarding claim 5 and 8,** Kitagawa discloses wherein said power storing section comprises an electric double layer capacitor (figure 3 item C2).

**Regarding claim 6,** Kitagawa discloses wherein a power source for a cell for controlling transfer of electric energy from said cell to loads, said power source circuit comprising:

Art Unit: 2838

a cell voltage detecting circuit to detect a voltage of said cell (figure 1 item 6),

a control circuit (figure 3 item 25),

an output voltage detecting circuit (figure 1 item 6),

a step-up DC-DC converter (figure 1 item 4),

an inductor (figure 3 item L1),

two or more switching circuits (figure 1 item 4),

and a power storing section mounted in an outputting section of said power source circuit (figure 3 item C2),

wherein a device employing said power source circuit is operated in a manner that, when a discharge voltage of said cell becomes lower than an operation lower limit voltage of said device to be operated, a voltage output from said power source circuit for said cell is made higher than said operation lower limit voltage of said device by using said step-up DC-DC converter (column 4 lines 32 – 55).

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2838

5. Claims 2, 4, and 6 rejected under 35 U.S.C. 103(a) as being unpatentable over Rahman (U.S. 5,990,664) and Kitagawa (U.S. 6,414,403) in view of Sado (U.S. 5,998,974).

**Regarding claims 2, 4, and 6**, neither Rahman nor Kitagawa disclose the invention as claimed. Sado discloses in column 17 lines 34 – 60 wherein the voltage drop is used to determine the overdischarge level. At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify the Rahman system with the Sado system so that a more accurate reading of the low level discharge is provided by the battery's internal resistance.

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Saeki (U.S. 2003/0030413) in view of Rahman (U.S. 5,990,664).

**Regarding claim 9**, Saeki discloses in figure 11, wherein the power source is comprised within case, item 300. Saeki discloses the invention as previously claimed, but does not disclose the remainder. Rahman discloses in column 5 lines 4 – 26; figure 3b item 2 wherein the voltage is increased by a boost converter when the voltage of the battery has discharged to a point below a certain level. At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify the Saeki system with the Rahman system so that when the battery has discharged to a low level, the battery can still provide power to the device.

Art Unit: 2838

7. Claims 10, 12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saeki (U.S. 2003/0030413) in view of Rahman (U.S. 5,990,664) as applied to claim 9 above, and in further view of Garstein (U.S. 6,163,131).

**Regarding claims 10, 12, and 14** both Saeki and Rahman disclose a secondary battery in figure 3 items E1-2 and in column 2 lines 11 – 21. The two references fail to disclose a primary battery. Garstein discloses in column 3 line 46 – column 4 line 6 wherein a primary (non-rechargeable) battery may be used. At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify the Saeki and Rahman system with the Garstein system so that the application can be used on a wide variety of devices.

8. Claims 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitagawa (U.S. 6,414,403) in view of Saeki (U.S. 2003/0030413).

**Regarding claim 11**, Kitagawa discloses claimed invention except wherein the power source is comprised within the case. Saeki discloses in figure 11, wherein the power source is comprised within case, item 300. Kitagawa discloses wherein a power source for a cell for controlling transfer of electric energy from said cell to loads, said power source circuit comprising a cell voltage detecting circuit to detect a voltage of said cell (figure 1 item 6), a discharge controlling circuit (figure 3 item 25), an output voltage detecting circuit (figure 1 item 6), a step-up DC-DC converter (figure 1 item 4), a switching circuit to switch positive electrode of said cell to either of an output terminal of said power source circuit or an inputting section of said step-up DC-DC converter (figure 1 item 4), and a

Art Unit: 2838

power storing section mounted in an outputting section of said power source circuit (figure 3 item C2), wherein a device employing said power source circuit is operated in a manner that, when a discharge voltage of said cell becomes lower than an operation lower limit voltage of said device to be operated, a voltage output from said power source circuit for said cell is made higher than said operation lower limit voltage of said device by using said step-up DC-DC converter (column 4 lines 32 – 55). At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify the Kitagawa system with the Saeki system so that the battery pack can be protected from damage by the housing.

**Regarding claim 13**, Kitagawa discloses claimed invention except wherein the power source is comprised within the case. Saeki discloses in figure 11, wherein the power source is comprised within case, item 300. Kitagawa discloses wherein a power source for a cell for controlling transfer of electric energy from said cell to loads, said power source circuit comprising a cell voltage detecting circuit to detect a voltage of said cell (figure 1 item 6), a discharge controlling circuit (figure 3 item 25), an output voltage detecting circuit (figure 1 item 6), a step-up DC-DC converter (figure 1 item 4), a switching circuit to switch positive electrode of said cell to either of an output terminal of said power source circuit or an inputting section of said step-up DC-DC converter (figure 1 item 4), an inductor (figure 3 item L1), two or more switching circuits (figure 1 item 4), and a power storing section mounted in an outputting section of said power source



Art Unit: 2838

circuit (figure 3 item C2), wherein a device employing said power source circuit is operated in a manner that, when a discharge voltage of said cell becomes lower than an operation lower limit voltage of said device to be operated, a voltage output from said power source circuit for said cell is made higher than said operation lower limit voltage of said device by using said step-up DC-DC converter (column 4 lines 32 – 55). At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify the Kitagawa system with the Saeki system so that the battery pack can be protected from damage by the housing.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexis Boateng whose telephone number is (571) 272-5979. The examiner can normally be reached on 8:30 am - 6:00 pm, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Karl Easthom can be reached on (571) 272-2084. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2838

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AB

  
**KARL EASTHOM**  
**SUPERVISORY PATENT EXAMINER**